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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/566,033  
Filing Date: July 14, 2006  
Appellant(s): EICHBERGER ET AL.

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Erik R. Swanson  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11/02/2009 appealing from the Office action mailed 11/09/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,477,195	MITTAG et al.	11-2002
3,258,328	GOSS et al.	5-1963
3,634,592	PANTKE et al.	1-1972
3,379,426	REUTER et al.	4-1968

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

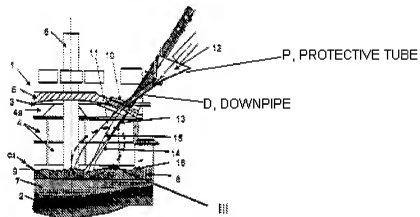
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

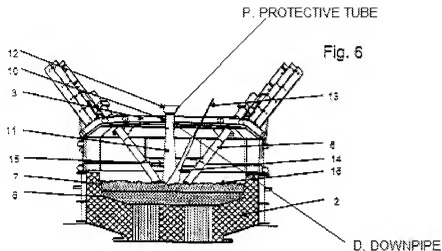
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-8, 10, 13, 15, 17, 20-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mittag et al (US 6,477,195) previously cited by applicants, in view of Goss et al (US 3,258,328) new cited. Mittag discloses a process for melting sponge iron and electric-arc furnace comprising the step of charging fine-grained metal (11) into an electric arc furnace (1) in which the metal is supplied essentially continuously via at least one downpipe (D, Figures below) to one or more opening (10) as a bulk material stream, and falls onto the melt merely by gravity, wherein before entering the furnace after the downpipe the bulk material stream is passed through a dosing orifice (12) and enters the furnace essentially undisturbed. However, Mittag does not disclose a dosing orifice to control a material flow rate so as to maintain at

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least a position of the downpipe filled with the bulk material. Goss discloses a dosing orifice having a gate (23) to control a material flow rate so as to maintain at least a position of the downpipe (18) filled with the bulk material. It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Mittag a dosing orifice to control a material flow rate so as to maintain at least a position of the downpipe filled with the bulk material as taught by Goss in order to supply the material to the furnace undisturbed and also control the material stream not enlarged during the fall onto the melt. With regard to claim 8, it is presumed that the protective tube (P, Figure below) is cooled by surrounded air.





Claims 10, 13-19 and 20-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pantke et al (US 3,634,592) previously cited by applicants, in view of Goss et al (US 3,258,328) new cited. Pantke discloses suction device for an electric arc furnace comprising a furnace roof (1d) having at least one opening (col. 4, lines 47-49) being connected with a downpipe (4) leading to the furnace from outside for supplying material to be charged, wherein at the opening of the downpipe into furnace a dosing orifice is provided (figure 1). However, Pantke does not disclose an opening of the downpipe into the furnace an adjustable dosing orifice. Goss discloses an opening of the downpipe (18), which is making by adjustable gate (23), into the furnace an adjustable dosing orifice. It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Pantke an opening of the downpipe into the furnace an adjustable dosing orifice as taught by Goss in order to control a flow of the material into the furnace. With regard to claim 19, it is presumed that the protective tube (10) is cooled by surrounded air.

Claim 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mittag et al (US 6,477,195) previously cited by applicants, in view of Goss et al (US 3,258,328) new cited. Mittag/Goss disclose substantially all features of the claimed invention including the sponge iron (11) in the form of pellets, and /or briquets, and also in the form of fines is conducted into the inside of the furnace via. However, Mittag/Goss is silent about the grain size of less than 1mm, or less than 0.5mm , or less than 0.4mm, or less than 0.3mm. It would have been obvious to one ordinary skill in the art at the time the invention was made to have the grain size of less than 1mm, or less than 0.5mm , or less than 0.4mm, or less than 0.3mm. Since the smaller grain size the easy to treat when flows into the furnace.

Claims 3, 11-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mittag et al (US 6,477,195) previously cited by applicants, in view of Goss et al (US 3,258,328) new cited, and further in view of Reuter et al (US 3,379,426). Mittag/Goss disclose substantially all features of the claimed invention except the material stream passed through an iris. Reuter discloses a material stream passed through an iris (col. 4, lines 46-55). It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Mittag/Goss a material stream passed through an iris as taught by Reuter in order to control the flow of the material.

Claim 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pantke et al (US 3,634,592) previously cited by applicants, in view of Goss et al (US 3,258,328) new cited, and further in view of Reuter et al (US 3,379,426). Pantke/Goss disclose substantially all features of the claimed invention except the material stream

passed through an iris. Reuter discloses a material stream passed through an iris (col. 4, lines 46-55). It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Pantke/Goss a material stream passed through an iris as taught by Reuter in order to control the flow of the material.

#### **(10) Response to Argument**

Grounds of Rejection No. 1: Obvious rejection of claims 1-2, 4-8, 10,13, 15, 17 and 20-26 based on a combination of Mittag and Goss

Applicants argue that Mittag fails to disclose at least the features that “the bulk material stream enters the furnace essentially undisturbed” and that “the bulk material stream is not substantially enlarged during the fall onto the melt,” as recited in claims 1 and 22. This is not found persuasive. Mittag discloses a sponge iron is introduced through a down pipe (D, Figure above) with a large quantities of up to 7,000 kg/min (col. 1, lines 35-50) undisturbed by gravitation (col. 2, lines 8-14). Since the down pipe (D of above Figure 6) has a shape (rounded shape , col. 1, lines 42-43) and layout the same of the down pipe (12) of the present application (both vertically mounted), therefore, Mittag also discloses the bulk material stream is not substantially enlarged during the fall onto the melt as same as the present application.

Applicants also argue that Goss does not contain any teaching that the bulk material stream is not substantially enlarged during the fall onto the melt. This is not found persuasive. Goss's reference is only used for the teaching of a dosing orifice to



control a material flow rate so as to maintain at least a position of the downpipe filled with the bulk material. Other limitations are already disclosed by Mittag.

Grounds of Rejection No. 2: Obvious rejection of claims 10, 13-19 and 20-21 based on a combination of Pantke and Goss

Applicants argue that none of Pantke or Goss teach or suggest "a furnace roof being connected with a downpipe", "wherein at an opening of the downpipe into the furnace an adjustable dosing orifice is configured to control a flow of the material into the furnace". This is not found persuasive. Pantke discloses suction device for an electric arc furnace comprising a furnace roof (1d) having at least one opening (col. 4, lines 47-49) being connected with a downpipe (4) leading to the furnace from outside for supplying material to be charged, wherein at the opening of the downpipe into furnace a dosing orifice is provided (figure 1). However, Pantke does not disclose an opening of the downpipe into the furnace an adjustable dosing orifice. Goss discloses an opening of the downpipe (18), which is making by adjustable gate (23), into the furnace an adjustable dosing orifice. It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Pantke an opening of the downpipe into the furnace an adjustable dosing orifice as taught by Goss in order to control a flow of the material into the furnace. With regard to claim 19, it is presumed that the protective tube (10) is cooled by surrounded air.

Further, the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*,

184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

Grounds of Rejection No. 3: Obvious rejection of claim 9 based on a combination of Mittag in view of Goss

Applicants argue that claim 9 properly depends from independent claim 1 and none of Mittag or Goss disclose the features that "the bulk material stream enters the furnace essentially undisturbed" and that "the bulk material stream is not substantially enlarged during the fall onto the melt," as recited in claim 1.

Since this argument is same as the argument of claim 1, therefore, please see the above of the Grounds of Rejection No. 1.

Grounds of Rejection No. 4: Obvious rejection of claim 3 and 11-12 based on a combination of Mittag in view of Goss and further in view of Reuter.

Applicants argue that a combination of Mittag and Goss with Reuter could not render claim 1 or its dependent claim 3 obvious, and Reuter does not teach or suggest "a furnace roof being connected with a downpipe" "wherein at an opening of the downpipe into the furnace an adjustable dosing orifice is configured to control a flow of the material into the furnace". This is not found persuasive. Mittag/Goss disclose substantially all features of the claimed invention except the material stream passed

through an iris. Reuter discloses a material stream passed through an iris (col. 4, lines 46-55). It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Mittag/Goss a material stream passed through an iris as taught by Reuter in order to control the flow of the material. Further, Reuter's reference is only used for the teaching of the material stream passed through an iris. The other limitations are already disclosed by Mittag and Goss. Mittag, Goss and Reuter are all in the same melting furnace technical field, therefore, one ordinary skill in the art would combine these references.

Furthermore, the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

Grounds of Rejection No. 5: Obvious rejection of claim 11 based on a combination of Pantke in view of Goss and further in view of Reuter.

Applicants argue that a combination of Pantke and Goss with Reuter could not render claim 10 or its dependent claim 11 obvious, and Reuter does not teach or suggest "a furnace roof being connected with a downpipe" "wherein at an opening of the downpipe into the furnace an adjustable dosing orifice is configured to control a flow of

the material into the furnace". This is not found persuasive. Pantke/Goss disclose substantially all features of the claimed invention except the material stream passed through an iris. Reuter discloses a material stream passed through an iris (col. 4, lines 46-55). It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in Pantke/Goss a material stream passed through an iris as taught by Reuter in order to control the flow of the material. Further, Reuter's reference is only used for the teaching of the material stream passed through an iris. The other limitations are already disclosed by Pantke and Goss. Pantke, Goss and Reuter are all in the same melting furnace technical field, therefore, one ordinary skill in the art would combine these references.

Furthermore, the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Quang T Van/

Primary Examiner, Art Unit 3742

Conferees:

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742

/Henry Yuen/

Special Programs Examiner, TC 3700